PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Masaki OKAMURA et al. Attn: PCT Branch

Application No. New U.S. National Stage of PCT/JP04/010091

Filed: December 8, 2005 Docket No.: 126722

For: MOTOR DRIVE APPARATUS CAPABLE OF ACCURATELY ESTIMATING DEMAGNETIZATION OF PERMANENT MAGNET MOTOR

SUBMISSION OF THE ANNEXES TO THE INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Attached hereto is the annexes to the International Preliminary Report on Patentability (Form PCT/IPEA/409). The attached material replaces claim 1.

Respectfully submitted,

James A. Oliff
Registration No. 27,075

Eric D. Morehouse
Registration No. 38,565

JAO:EDM/cqc

Date: December 8, 2005

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

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CLAIMS

1. (amended) A motor drive apparatus comprising:

estimation means (89, 91) estimating an amount of demagnetization of a permanent magnet motor (60) based on a voltage control amount of the q axis applied in a case where said permanent magnet motor (60) is controlled using a d-q axis transformation; and

operation handling means (91) limiting an output of said permanent magnet motor (60) when said estimated amount of demagnetization is larger than a predetermined value.

2. The motor drive apparatus according to claim 1, further comprising a converter (20) changing an input voltage necessary for driving said permanent magnet motor (6), wherein

said estimation means (89, 91) corrects said estimated amount of demagnetization according to the level of said input voltage.

3. The motor drive apparatus according to claim 1, wherein

said estimation means (89, 91) estimates said amount of demagnetization by comparing the voltage control amount of the q axis to be controlled with a reference value.

4. The motor drive apparatus according to claim 3, wherein

said estimation means (89, 91) holds, in the form of a map (MAP), the reference values correlated with at least two revolution numbers to extract said reference value from said map (MAP) and estimate said amount of demagnetization.

5. The motor drive apparatus according to claim 1, wherein